Life Sciences

DISCOVERY FUND

NEWS RELEASE

For Immediate Release

Media contact: Cathyryne Manner
Tel: 206-732-6755
manner@lsdfa.org

WASHINGTON STATE LIFE SCIENCES DISCOVERY FUND ANNOUNCES GRANTS TO COMMERCIALIZE PROMISING TECHNOLOGIES

SEATTLE, Washington, February 8, 2011— The Life Sciences Discovery Fund (LSDF) today announced nearly $600,000 in awards to support commercial development of technologies to improve the diagnosis and management of major health conditions.

Two of the four new grants are aimed at producing novel tests to diagnose or monitor disease. Jane Burns at Seattle Children's Hospital, in conjunction with Enertechnix, a Washington-based company, will adapt a novel air sampling device to collect exhaled breath for non-invasive detection of lung infections. Patrick Stayton at the University of Washington will develop new reagents to increase the speed and sensitivity of laboratory tests (known as immunoassays) used for diagnosing and monitoring disorders such as cancer and heart disease.

The remaining two grants focus on better management of neurological conditions. Christopher Bernards at Benaroya Research Institute at Virginia Mason will test a device, developed by the University of Washington and Seattle-based Impel NeuroPharma, that delivers drugs directly to the brain, potentially reducing harmful side effects. Barry Lutz at the University of Washington will use his award to develop an improved drainage system to reduce intracranial pressure in patients with brain disorders or trauma.

The awards were made in the second round of the 2010 commercialization grant competition, which promotes the translation of promising technologies from Washington's non-profit research sector into marketable products and services having the power to improve health, foster economic growth, and enhance life sciences competitiveness in the state.

"The Board of Trustees was particularly impressed with the 'platform potential' of these awards," noted LSDF executive director Lee Huntsman. "These are multi-application technologies. Even though the LSDF grant may focus on use for a single purpose, such as detecting bacteria in cystic fibrosis patients or reducing pain, each technology could have much

broader applicability for diagnosing or treating a wide array of patients. This significantly enhances the potential for commercial success and for improving health and health care in Washington and beyond."

Commercialization grants are intended to boost technologies trapped in the so-called "valley of death" (that portion of the product development cycle in which funding is the most difficult to obtain) and make them more amenable to funding from the private sector. Tom Clement, Director of New Ventures-Life Sciences at the University of Washington Center for Commercialization (C4C), stated that "LSDF commercialization grants are a key component of C4C's mission of moving research discoveries out of the lab and into people's lives. These grants support proof-of-concept studies and other critical activities that help our Entrepreneurs-in-Residence and other expert advisors guide research outcomes into products to improve human health."

The four awards were chosen from the 10 proposals received in the competition. A panel of national experts convened by the American Association for the Advancement of Science evaluated the scientific and technical merit of the projects, while a panel of commercialization experts assessed each project's commercial potential and possible health and economic benefits. The LSDF Board of Trustees made the final award selections.

According to Lura Powell, chair of the LSDF Board of Trustees, getting new technologies into widespread use usually includes forming new companies or establishing partnerships with existing companies. Each of the four awards involves or anticipates the launch of a Washington-based company, in line with LSDF's mission to enhance the Washington economy. "These young technologies will not have an impact on human health without company involvement. We are pleased to use our commercialization grant funding to both move the technologies forward and encourage the development of Washington's for-profit life sciences sector," she stated.

Funding for commercialization grant awards comes from donations to LSDF by Amgen, the Bill & Melinda Gates Foundation, Group Health Cooperative, Microsoft Corporation, the Paul G. Allen Family Foundation, Regence BlueShield, and Safeco Insurance Foundation; and from Washington's allocation of payments under the Master Tobacco Settlement Agreement of 1998, revenues arising from multi-state litigation with tobacco product manufacturers.

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The Life Sciences Discovery Fund, a Washington state agency established in May 2005, makes grant investments in innovative life sciences research to benefit Washington and its citizens.

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BACKGROUNDER INFORMATION

Life Sciences Discovery Fund
2010 Commercialization Grant Competition-Round 2 Awards

Christopher Bernards, Benaroya Research Institute at Virginia Mason, $150,000

Project Title: *Olfactory Delivery of Centrally-Acting Analgesics*

Project Focus: To conduct first-in-human testing of a novel device that can deliver drugs directly to the central nervous system

Drugs targeting the central nervous system (CNS) currently must be delivered either systemically (orally or intravenously) or by direct injection into the cerebrospinal fluid (CSF). However, systemic exposure to drugs can cause serious side effects or toxicities, and CSF injection is risky, painful, and expensive. The University of Washington and Seattle-based commercial partner Impel NeuroPharma have developed a novel device for targeted drug delivery to the CNS through an intranasal route. Results of initial testing in animal models are promising. The goal of this grant is to demonstrate in human clinical studies that the device can preferentially deliver a pain medication to the CNS. The research team will compare CNS actions and blood levels of drug delivered via the device with those of systemically delivered drug. Impel NeuroPharma is pursuing partners and funding for commercialization of the device.

Jane Burns, Seattle Children's Hospital, $150,000

Project Title: *Non-Invasive Detection of Pseudomonas aeruginosa in the Exhaled Breath of Individuals with Cystic Fibrosis*

Project Focus: To adapt a novel air sampling device to collect exhaled breath for non-invasive detection of lung infections

Diagnosis of lower airway infections in young children is often difficult because they are unable to produce sputum, which is the best sample for culture detection of organisms. This is particularly problematic in children with community-acquired pneumonia, latent tuberculosis infections, or cystic fibrosis (CF). Appropriate diagnosis is critical to avoid either undertreatment of serious infections or overutilization of antibiotics, leading to antibiotic resistance. The goals of this grant are to: 1. adapt an aerodynamic lens aerosol concentrator device, which was

developed by commercialization partner Enertechnix, based in Maple Valley, Washington, for direct capture of exhaled breath for detection of bacteria or viruses; and 2. test the modified device in children with CF to assess sensitivity and specificity of *Pseudomonas aeruginosa* detection compared with sputum analysis. If this proof of concept study is successful, Enertechnix will seek additional funding to test the device in patients with other lung infections.

Barry Lutz, University of Washington, $149,461

Project Title: *An Auto-regulated Externalized Cerebrospinal Fluid Drainage System for Improved Control, Safety, and Patient Mobility in Neurosurgery Patients*

Project Focus: To develop a prototype of an improved externalized cerebrospinal fluid drainage system and to test it under simulated patient conditions

External ventricular drains are placed to reduce intracranial cerebrospinal fluid (CSF) volume and lower intracranial pressure (ICP) in situations such as brain trauma, brain hemorrhage, stroke, brain tumors, and hydrocephalus. Among other drawbacks, current drain systems require frequent adjustments by nurses to control drainage rate and require patients to remain completely still. The research team will develop a smart external drain system that automatically maintains a CSF drainage rate or ICP. The system will eliminate the need for manual upkeep by hospital staff and allow patients to move freely during treatment. The proposed device will facilitate more efficient patient monitoring by nurses and physicians, increase patient safety, and introduce mobility to currently immobilized patients (potentially leading to fewer complications and more rapid recovery). A company, Aqueduct Neurosciences, has been formed to commercialize the system.

Patrick Stayton, University of Washington, $150,000

Project Title: *Next Generation High Speed Immunoassay*

Project Focus: To improve the speed and sensitivity of immunoassays using environmentally sensitive (smart) polymer technology

Immunoassays are critical tools used to guide clinical decision-making. They are involved in diagnosing and monitoring a host of diseases, including cancer, and cardiac and endocrine diseases. The smart polymer technology developed by the research team has the potential to enable both faster and more sensitive assays, and reagents developed with this technology may be readily adapted to current automated immunoassay systems. Under this grant, next-generation immunoassay reagents will be developed and tested in a model hormone assay using human samples. The investigators will directly compare their smart polymer-based immunoassay reagents with immunoassay reagents using current technology. A new company is planned to commercialize the reagents should proof of concept be demonstrated.

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